DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-007473
Date Inspected: 26-Jun-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 1400
OSM Departure Time: 2230
Location: Clackamas, OR

CWI Name: Brandon Crittendon

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Hinge-K Components

Summary of Items Observed:

Summary of Items Observed: On this date, Caltrans Quality Assurance Inspector (QA) Clete Henke was present at Oregon Iron Works, Inc. (OIW) in Clackamas, OR for observation of fabrication of the Hinge K Pipe Beams and related activities including in process welding and OIW Quality Control (QC) visual and nondestructive testing. The following observations were recorded:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Fuse Sub-Assembly 120A-7:
a125 stiffener ring to a124-16 Fuse
The QA Inspector intermittently monitored OIW welder Phuong Huynh (WID H4) during in progress Submerged Arc Welding (SAW) at weld joint WM3-05. The referenced connection joins a125 stiffener ring to a124-16 Fuse Section. Welder H4 deposited SAW fill and cover passes in the flat (1G) position in accordance with approved welding procedure 4020 at the location referenced above. The QA Inspector noted the OIW welder was maintaining continuous preheat utilizing two torches. An OIW helper was observed assisting welder H4 during SAW process. The QA Inspector observed OIW QC Inspector Brandon Crittendon regularly monitoring and recording the in process SAW parameters. Mr. Crittendon was approved for the project on June 2nd, 2009 and relevant documentation verifying his approval was provided by OIW QC. The QA Inspector also intermittently observed in process welding parameters and determined that the SAW parameters and minimum preheat/interpass temperature appeared to be in general compliance with the contract requirements -- (35 volts, 585 amperes, 457mm/min travel speed).

Hinge-K Pipe Beam Fuse Assembly 120A-2:

a124-3 to a124-11
The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Fuse Assembly 120A-5:
a124-14 to a124-2
The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Fuse Sub-Assembly 120A-6:
A124-9 to a124-1
The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Base Assembly 102A-1:
a111-1 forging to a110-4 base plate
The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

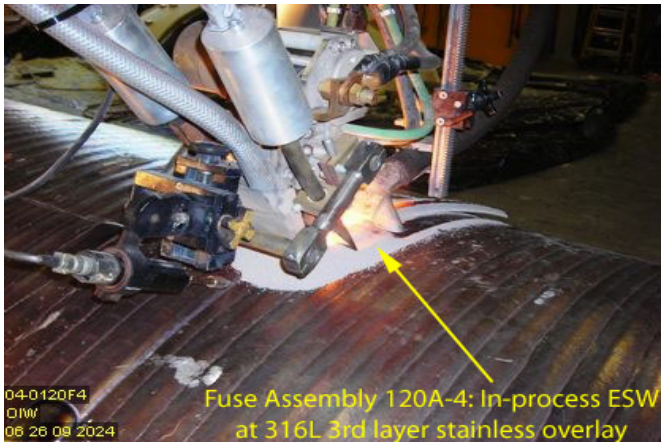
Hinge-K Pipe Beam Base Assembly 102A-4:
a111-4 forging to a110-4 base plate
The QA Inspector intermittently monitored OIW welder Bui Liem (WID B10) during in progress Submerged Arc Welding (SAW) at weld joints W1-82 & W1-123. The referenced connections join radial stiffeners d108 & e108 to a106 & a107 stiffeners respectively. Weld joint W1-82 was completed at about 1900 hrs and W1-123 initiated shortly thereafter. The QA Inspector observed as OIW QC Inspector Brandon Crittendon performed Magnetic particle Testing (MT) and Visual Inspection (VT) of ground tack welds and subsequently the completed root pass at weld W1-123. Mr. Crittendon stated that he had located no rejectable indications. The QA Inspector subsequently performed 100% VT & 50% MT verification at the location noted above finding the root pass to be in general compliance with contract documents. Please reference TL-6028 report for this date for details. The QA Inspector intermittently observed as welder B10 continued to deposit SAW fill and cover passes in the flat (1G) position in accordance with approved welding procedure. The QA Inspector noted the OIW welder was maintaining continuous preheat utilizing a torch. The QA Inspector observed OIW QC Inspector Brandon Crittendon regularly monitoring and recording the in process SAW parameters. The QA Inspector also intermittently observed in process welding parameters and determined that the SAW parameters and minimum preheat/interpass temperature appeared to be in general compliance with the contract requirements -- (W1-82: 35 volts, 585 amperes,432mm/min travel speed).

Hinge-K Pipe Beam Fuse Assembly 120A-3:
The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

OIW Fabrication Shop-Bay 6
Hinge-K Pipe Beam Fuse Assembly 120A-4:
a124-13 to a124-4
The QA Inspector intermittently observed OIW qualified welder Bounheune Savanh (WID S74) during in-process welding of Soudotape 316L stainless steel overlay to hinge k pipe beam fuse sub-assembly 120A-4. The weld joint is identified as 316L 3rd layer. Mr. Savanh was observed welding in the flat position utilizing automatic electro slag welding (ESW) overlay process with a .5mm x 60mm Soudotape 316L stainless electrode, filler metal brand Soudotape class EQ316L automatic. An OIW helper was observed assisting welder S74 during ESW

activity. The QA Inspector observed OIW QC Inspector Steve Barnett regularly monitoring and recording the in process ESW parameters. The QA Inspector also intermittently observed in process welding parameters and determined that the ESW parameters (1200 amps, 25.2 volts, 254mm/min travel speed) and minimum preheat temperature of 70° F appeared to be in general compliance with the contract requirements and approved OIW Welding Procedure Specification (WPS) 7003.

Material, Equipment, and Labor Tracking:
The QA Inspector performed verification of personnel involved with this project and equipment in use. The QA Inspector accounted for 5 OIW production personnel and 1 Quality Control Inspector present on this date.



Summary of Conversations:
As noted in the body of the report.

Comments
This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677 , who represents the Office of Structural Materials for your project.

Inspected By: Henke,Clete Quality Assurance Inspector

WELDING INSPECTION REPORT

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Reviewed By: Adame,Joe QA Reviewer